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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,713	07/15/2003	Scott E. Moore	108298522US1	9587

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EXAMINER

ROSENBERGER, RICHARD A

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/620,713

Applicant(s)

MOORE, SCOTT E.

Examiner

Richard A Rosenberg

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 46-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 46-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2877

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by, and claims 47-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Van Laarhoven (US 4,946,550).

Figures 2 and 3 in the reference shows a microelectronic substrate assembly comprising a substrate (10), a first layer (2), a second layer (3) and a third layer (5). The first layer (2) is silicon nitride (column 6, line 40), the second layer (3) is silicon dioxide (column 6, lines 36-37), and the third layer (5) is resist (column 6, line 39). The silicon nitride and silicon dioxide layers are inherently different colors because of their different materials. The reference does not disclose the color or

Art Unit: 2877

transparency of the resist; those in the art could choose any known and available resist for the resist in such a structure.

4. Claims 52 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by, and claims 54-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al (US 4,145,703).

Blanchard et al shows, in Figure 5 for example, a microelectronic substrate assembly comprising a substrate (10A, 12A, 16A, 20A taken together), a first layer (25A), a second layer (28A) and a third layer (26A) between the first and second layers. The first layer (25A) is silicon nitride (column 7, line 50), the second layer (28A) is silicon dioxide (column 7, line 54), and the third layer (26A) is polysilicon (column 7, line 56). The silicon nitride, silicon dioxide, and polysilicon layers all are inherently different colors because of their different materials. available resist for the resist in such a structure. The instant disclosure and claims do not present the choice of resist as in anyway critical to the structure; not that claims 47-51 differ from each other in the choice of resist.

The reference shows that it is known to make a structure with a silicon nitride layer, a silicon dioxide layer, and a layer of a third material between them. Such multi-layer structures well-known in the art. Those in the art could form such structures using other known materials having other optical characteristics.

5. Claims 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lustig et al (US 5,433,651) in view of Shaffer (US 4,755,058).

Lustig et al shows controlling a planarization process by directing light onto the workpiece, monitoring the reflected light during processing, and using the measured reflected light to control the process. In particular the reference mentions the determination of end-points; see column 9, lines 54-60. Although the reference is particularly directed to a particular structure, the method is presented as a general method usable with different materials; note column 9, lines 58-59, which discusses calibrating the machine "to the type of material being polished and the pattern factor of the underlying layer", which at least suggests that other types of materials and other underlying layers can be used with this optical measurement and control system.

It is known in the art that reflectance measurements may advantageously be made at a plurality of different wavelengths to allow better discrimination; see for instant Shaffer, which shows the known technique of providing a plurality different wavelengths in a reflectance measurement (column 6, lines 5-16). It would have been obvious to so use a plurality of different wavelengths with the device or Lustig et al because that reference teaches a reflectance measurement that, as is known, can be advantageously be made with an plurality of wavelengths to better discriminate the difference between the layers as they become exposed through the processing.

6. Claims 46-58 claim only a structure comprising a substrate having three different layers with some optical characteristics. The preamble language "for use in controlling mechanical and/or chemical planarization processes" is a non-limiting statement of intended use that does not limit the structure claimed. Calling one layer a "sacrificial layer" is nothing more than nomenclature that does not change the claimed structure; a layer made of some material is a layer made of that material whether or not it happens to be termed a "sacrificial layer" or not. Merely renaming the polysilicon layer a "sacrificial layer" does not change the structure nor its optical properties and does not make that previously known structure patentable.

The remarks may well be correct that those in the art would, faced with a teaching such as Van Laarhoven, choose the resist layer based upon its suitability for a photolithographic process rather than primarily for its color. However, it is not true that that reason for the choice will change the optical properties of the chosen resist and make the resist optically indistinguishable from the underlying layer. The instant claims are not limited to resists that are unsuitable for photolithographic processes, and such a limitation cannot be reasonably read into the claims. The fact is that any such structure in which the resist is in fact actually a different color than the underlying layers will meet claim 46 no matter what criteria may have been used for choosing the resist. Any resist that could reasonably

Art Unit: 2877

be chosen for any reason whatsoever would be obvious for that very reason; patent law requires a determination of obviousness, it does not require a determination of obviousness for an applicant's reasons; see *In re Dillon* (CA FC) 16 USPQ2d 1897 (11/9/1990).

7. Applicant's amendment adding new claims necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 872-9306

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (571) 272-2428.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger  
28 May 2004



Richard A. Rosenberger  
Primary Examiner